HEALTH

EDITED BY

DR. ANDREW WILSON, F.R.S.E., &c.

LONDON: *FRIDAY, FEBRUARY* 22, 1884.

Contents of No. 46.

	PAGE
Notes by the Way	321
Original Essays:—	
Examinations, Schools, and Health. II. By G. G. Chisholm, M.A., B.Sc.	322
Five Terrible Years. II. By James Clough	323
Personal Health:—	
Why we Eat our Dinner. By Dr. Andrew Wilson	325
The Family Circle:—	
A Word for the Babies	326
Our Useful Note-Book	327
Healthy Houses:—	
The Heating of Houses. I. By Dr. A. W. Bell	328
Sponge-Culture in Florida	329
Recreation and Health:—	
Calisthenics: or Lessons in Physical Education. III. By H. C. Standage	330
International Health Exhibition	331
Sanitary Appliances, &c.	332
Our Letter-Box:—	
Letters to the Editor	332
Queries and Answers	333

Notes by the Way

"Health is the foundation of all our physical happiness."—*Herder.*

The "tinned meat" question again seems destined to come to the front. We read of two boys who were said to have died in Glasgow through eating "tinned mutton;" and it is stated that no fewer than eleven persons in addition were affected by an illness of similar origin. Now, the phrase "tinned meat" is a very wide and indefinite one; and it is just as well that people should know that any meat put up in tins is liable to become noxious if allowed to remain exposed to the air, and if eaten after decomposition has set in. Tinned meats are not meant to be kept for any length of time after being opened. The food which, when newly opened, may be, and as a rule is, perfectly wholesome, is liable to acquire poisonous properties if allowed to remain exposed to the germ-laden air. There is also the further risk of certain noxious chemical actions taking place between the tin and the meat itself. It would, perhaps, be more satisfactory did the manufacturers of tinned meats announce the above facts plainly on the labels of the tins. Such a practice would tell as much in the interest of vendors as in that of purchasers.

✣ ✣ ✣

All animal substances appear liable to produce, as the result of decomposition and decay, certain chemical substances known as "cadaveric alkaloids." These were referred to in an early number of Health. Suffice it again to say that we know comparatively little as yet of the true nature, origin, and effects of such bodies. What is more to the point is the advice that whenever any food of animal nature—meat, cheese, shellfish, &c.—is suspected of having been poisonous, a smart "emetic" (or vomit) of mustard and hot water should be at once administered, and if the patient shows signs of collapse stimulants, in the shape of brandy, ammonia, &c., should be given.

✣ ✣ ✣

The cat appears of late to have acquired an unenviable notoriety in respect of the production of hydrophobia. At least two cases have been reported, within as many weeks, of children, who, after having been bitten by rabid cats, succumbed to the dread disease. The cat, of course, is well known to be liable, like the dog, to attacks of *rabies;* but, as in the case of the dog, it is only the bite of a "rabid" (*i.e.*, diseased) cat, which can produce hydrophobia in man. An ordinary cat or dog bite, properly sucked, washed, and allowed to bleed freely for a time, need cause no one any alarm.

✣ ✣ ✣

Mr. Chisholm's papers on "Schools and Examinations," now appearing in our pages, direct attention to what may be called the "great cram evil" of modern educational systems. Mr. Johnson Martin, Medical Officer of Health to the Bolton Rural District," has discussed in a recent paper the injuries to health arising from "cram" and its prevalence. He gives cases of undoubted strain in children, and shows how terribly lasting are the effects of such tasks and hours on youthful minds and bodies. A father told Mr. Martin that his little girl was to be found "at her lessons as soon as she gets out of bed, then at school, and when she comes home at night," continued the parent, "she has so many lessons to learn that she cannot eat and is now growing as thin as a lath." We trust the father in this case did not require any medical advice to enable him at once to apply the only remedies of service in the case—rest, play, fresh air, and a long holiday. Another little girl broke down under the accumulation of tasks, talked about her lessons in her sleep, and so on. It is clear that unless parents (who really make the laws) will take the matter of "cram" into their own hands, the days of the "innocents" are doomed. We are trying to make our children "wise as serpents," and a sorry mess we are making of their health and life in the endeavour!

✣ ✣ ✣

Dr. Anderson, the Dundee Medical Officer of Health, has just published an interesting address on the duration of life in that thriving town. One set of statistics he quotes is worthy remembrance by the enterprising spirits who desire to see the banks of the Tay tenanted by long-livers and healthy persons. Dividing the population of Dundee into four classes, Dr. Anderson adduces statistics to show the mortality prevalent in each class. The first class includes the gentry, professional men, merchants, and employers of labour; and [with the mean age (at death) of *all* who died above twenty years of age at 52·34 years] the mean age at death in this first class was 64·54. Class second includes tradesmen, shopkeepers, salaried persons, and here the mean age at death as above indicated was 51·37. In class three, represented by mill-workers, factory hands, foundry-workers, and those in docks and shipyards, the mean age at death was 49·68. In class four (including all other wage-earning persons) the mean death-age was 53 61. That there is great room for improvement in the means of healthy living in Dundee, as in every other town indeed, is clearly borne out by the above statistics.

✣ ✣ ✣

We hear of an interesting philanthropic experiment which is about to be instituted at Bournemouth by Lord Henry Somerset, in the shape of a home for young men suffering from consumption. The beds are to be largely free; and the benefits of such an institution to shop-assistants, clerks, and others whose means do not admit of their paying a visit to a health-resort, must be incalculably great. Paying patients, we understand, will also be ad-

Daylight in Passages.—Chappuis' Reflectors, 69, Fleet-street.—[Advt.]

mitted; and it would be satisfactory to learn that a "side" for female patients was likewise included in the founder's intent.

✣ ✣ ✣

When we hear of vast sums of money being subscribed for the erection of statues to statesmen, more or less distinguished, or for "missions" to Jews and Pagans, we may well be tempted to reflect upon the nobility with which such a work at home as that above-noted becomes invested, when compared with the multifarious schemes and often absurd ways of spending money abroad which are in daily practice. Few persons realise how eagerly the chances of health are clung to by the poor, or how bitterly the inability to procure health-conditions for want of means is felt by many who are ashamed to ask charity or pecuniary aid. Many a bread-winner, who might have been saved from the toils of consumption by a change for a few months to a genial resort, is forced, through "lack of gold," to perish at home, and to leave a widow and children to face the world, helpless and alone. The rich and well-to-do should bethink themselves of schemes like that of Lord Henry Somerset, as presenting not only opportunity for doing good of the highest kind to individuals, but of benefiting through the sufferers they relieve, hundreds of others who may be dependent on the sick ones. There are too many schemes of grandiloquent nature afoot after all. True charity and religion consist more typically in relieving the helpless sick than in supporting hydra-headed "foreign missions," or in attempting to proselytise Jews.

✣ ✣ ✣

In common with many of our readers we are waiting with patience to hear more about Dr. Moffatt's "Italian air" theory of voice-improvement. A Mr. White, of Plymouth, writing in the *Lancet*, remarks, that while English pupils studying in Italy do not experience the remarkable effects claimed for Italian air, Italian vocalists in England contrariwise do not lose their own special brilliance of tone. This looks like a sensible criticism, and suggests that, after all, race-peculiarity, and not peroxide of hydrogen, lies at the root of the Italian purity of song.

✣ ✣ ✣

"An American Assembly-man," says the *Pall Mall Gazette*, "who holds that, besides the three R's, instruction in physiology and hygiene should be given in the public schools of America, has drafted a Bill for that purpose. In his opinion, it is necessary that some knowledge of the human body and of the conditions under which that body can live in a healthy state should be imparted to a child. And not only should this be taught, but it should be taught with especial reference to the effect of narcotic and alcoholic poisons on the human system. His Bill requires that teachers applying for positions in the public schools shall be examined with reference to their knowledge of physiology and hygiene. But it is easier to make a Bill than to pass it, as our Assembly-man has experienced, for all his earnest endeavours have not yet proved successful." Yet that "American Assembly-man," in our humble opinion, is on the right track for healthy, intelligent civilisation.

The Banner System of Sanitation has recently been applied to the Board Room of the Paddington Vestry Hall, Harrow Road, W. Messrs. Banner have been requested to inspect and report upon the ventilating arrangements at Lloyd's Underwriting Rooms, London.

Original Essays

"Life is not to live, but to be well."—*Martial.*

EXAMINATIONS, SCHOOLS, AND HEALTH.

By Geo. G. Chisholm, M.A., B.Sc.

SECOND PAPER.

I promised in the present paper to adduce some evidence of the injurious effect on health of excessive examination. To furnish this evidence is unfortunately too easy. I may begin with the evidence of a general nature borne by medical authorities. Numerous medical men give their support to the *Lancet* in saying "there can be no room to question the extreme peril of overwork to young children and youth with undeveloped brains." And with reference to what actually happens in our schools, Dr. Hack Tuke, who cannot be looked upon as a fanatical opponent of the examination system, reminding us, as he does, that "it is possible to exaggerate, as well as to underrate, the mischief done by excessive mental work . . . . to the unjust detriment of the educator and examiner," yet declares that "the present abuse of the system ought to be protested against by all who desire that the future men and women of Britain shall be in possession of 'healthy minds in healthy bodies.'"

Much detailed evidence on this subject is furnished in an excellent article by Mr. R. A. Armstrong, originally published in the *Modern Review*, and afterwards separately under the title of "The Over-strain in Education." Not only that pamphlet, but various other testimony shows that in the case of pupil-teachers employed in Board Schools, and required to teach younger pupils, and to prepare themselves for a variety of examinations, the strain is especially severe. We find, in consequence, numerous complaints as to the miserable physique of pupil-teachers.

To this fact Mr. T. Pridgin Teale, President of the Health Department at the last meeting of the Social Science Congress, drew special attention in his Presidential address. Speaking as a medical man, as a professional teacher, as a University examiner, and as a member of the Medical Council, with reference to the tendency of modern education to influence health and physical growth, he said that his own observations, chiefly made upon pupil-teachers, had been such as to render him "horrified at the refinement of human slavery and torture that had been invented." "The nation," he added, "can hardly realise what is the life of these pupil-teachers."

An inspector of schools gives evidence of a like kind. He states that while the head-teachers are compelled to get more and more out of the pupil-teachers to meet the increasing demands upon the school-children, their own examinations are getting harder and harder, and many of them, in consequence—girls especially—show unmistakable signs of overwork.

As regards both teachers and pupils in our Board Schools, the principle of "payment by results" is responsible for much injury to the health. We are indebted for this means of ensuring and gauging educational progress to Mr. Robert Lowe, now Lord Sherbrooke, who, several years after it was practically applied in our educational system, defended it by an aphorism well fitted to appeal to a nation so thoroughly grounded in the axioms of political economy as this is. "Once place," he says, "a man's ear within the ring of pounds, shillings, and pence, and his conduct can be counted on with the greatest nicety" (*Nineteenth Century*, 1878, p. 864).

I don't know exactly what the nature of the conduct counted on by Mr. Lowe was, but let us see what the conduct that ensues from the application of the principle so stoutly defended by him actually is.

It is necessary, however, first to explain the mode in which the principle is applied. The principle of "payment by results" in Board Schools means that the Government grant on account of any school, and consequently, as a rule, the amount of the teacher's salary, depends to some extent upon the number of children whom the teacher can get to pass the inspector's examination in the different standards. Directly or indirectly it is the pecuniary interest of the teacher to pass as high a proportion of his scholars as he can. His ear is brought directly "within the ring of pounds, shillings, and pence," and the conduct that sometimes results is like the following:—

"In Nottingham not long since the parents of a little girl, seeing her overdone and talking of lessons in her sleep, gave notice that they should keep her from school for a time. The teacher promptly called, and offered a present if the child attended regularly. A mistress in Yorkshire was called before a Committee of her Board a few weeks since for unmercifully beating a girl eight years old on the head, because she failed to work a problem in arithmetic (Standard III.). When the mother complained, the answer was that the child was clever enough, and could do the sum if she chose. The parents pleaded that she was delicate, and that they would much rather she did not pass the examination till next year, if any severity had to be used. To which answered the teacher, 'But I *want my money*, and I'll *make* her pass.'" ("Overstrain in Education," pp. 15-16.)

Such is the conduct that *may* ensue from the system of payment by results as now applied in education, but I will not be so unjust to human nature as to assert that that is the conduct that "can be counted on with the greatest nicety." Yet it is not reassuring to find from the reports of inspectors of schools how often the spirit that leads to conduct of the kind just illustrated is manifested by teachers in the management of their pupils. The evidence of inspectors of schools is important on this point, not only because they have better opportunities than almost any others of knowing the facts, but also because they are not, as a rule, prejudiced against a system, the working of which it is their business to superintend. Numerous extracts might be made from these reports in support of what has been stated; but there is only space for one or two.

The evidence of Mr. Synge, the inspector of the Norwich district, is very striking. "It must," he writes in his report for 1881—"it must have struck every one connected with elementary education that it is being conducted at present at the cost of a very great strain to all those concerned in it. . . . . Some few [teachers] are contented still to do their work well, day by day, without unduly troubling themselves about it; but there are more among the working section of teachers, who are troubled by the children who, from one cause or another, are not able to keep up with their fellows, and by the knowledge that the percentage of passes is likely to be less than that of some neighbouring school; and so the children are kept in from their play day after day, pupil-teachers have to work during a day of more than the appointed length, and while it is very doubtful whether more work is done, much disquiet and wrong are caused."

Another Inspector, Mr. Fisher, writes thus:—"A point to be noticed and condemned is a growing practice of keeping children in after the regular hours of instruction, in order to secure what are called higher results in the examination. . . . . Managers as a rule attach too much importance to the percentage of passes obtained in the annual examination, without sufficient regard for the quality of the work. The result is that teachers will strain strength to the utmost to convert a possible 90 per cent. of passes into 92. . . . . It is no teacher's duty to risk health and strength over children who can only acquire the minimum of knowledge at such a cost."

True enough, it is no teacher's duty, but it is a sample of the conduct that "can be counted on with the greatest nicety" when the teacher's ear is brought "within the ring of pounds, shillings, and pence."

The effect on the children is only what might be expected. "Dozens of instances," says Mr. Quayle, of Liverpool, headmaster of St. Thomas's and St. Matthew's, "of complaints from parents concerning their children's loss of appetite, talking in sleep, languor, nervous state, indifference to childish sports, &c. No robustness or energy." . . . . "The children would be better," writes a mistress, "both in mind and body, if their school-life was happier. The strain of the code prevents this." "The children's health is placed, unfortunately," writes a master, "in competition with the schoolmaster's means of living" ("Overstrain in Education," p. 15).

Medical and Sanitary Exhibition, 1881.—Award of Merit.—Diabetes. Van Abbott's Gluten Bread, and all other suitable Foods for Diabetic Patients. Dietary Tables and Price Lists post-free on application. Van Abbott, 5, Princes-street, Cavendish-square, W.—Delicate Children and Adults Suffering from Nervous Depression. Van Abbott's Hypophosphite of Lime Biscuits, for Delicate Children, especially those suffering from Deficiency of Bone, Weak Joints, or Debility, and Adults suffering from Nervous Depression. Each Biscuit contains five grains of the Hypophosphite of Lime. "Quite free from disagreeable taste, and taken willingly by Children, and certainly provide an excellent means of administering this valuable compound. Our analysis proves the accuracy of the printed descriptions on the labels of the boxes. The Biscuits were suggested by Mr. W. Adams, of the Orthopædic and Great Northern Hospitals." — *Lancet*, Nov. 4, 1876.—Van Abbott, 5, Princes-street, Cavendish-square.—[Advt.]

FIVE TERRIBLE YEARS.

By James Clough.

PART TWO.

A few weeks at most served to carry the plague into Egypt, into the two Sicilies, and to Marseilles, and, in fact, to all places having direct communication with Constantinople. From these places the whole of Europe was attacked.

In 1348 the disease had appeared in all the islands of the Mediterranean, also in Northern Italy, France, Spain, and Germany.

So severely did Italy suffer that whole villages and towns perished to a man, and many families became extinct. Indeed, it is said that half of the population was swept away. Venice lost a hundred thousand souls, and the rest fled in ships; Sienna lost seventy thousand; and in Sardinia and Corsica two died out of every three. Florence lost sixty thousand, who were stowed away in great holes, like goods in a warehouse, and so great was the terror, that it was forbidden either to ring the death-knell or to publish the numbers of the deceased. Boccaccio has left us a graphic account of the visit of the plague to this city, and has made this the *motif* on which to hang the plot of his "Decameron."

From Italy the plague passed over the Alps and met the wave which had already entered by Marseilles. In France, says the continuer of the chronicle of Nangis, in many parts, of twenty persons only two remained alive. At the

Hôtel Dieu, in Paris, five hundred died a day, and were carried in carts to the Cemetery of the Innocents. In Paris, eighty thousand perished, as well noble as simple, and among the victims are mentioned the Queen of Navarre, daughter of Louis X., and wife of Philippe of Valois, and also a bishop. At Avignon, the Pope consecrated the Rhone, so that the dead might be cast into its waves, for the mortality reaching up to sixty thousand, all the churchyards were full. At Marseilles sixteen thousand died in a month, and some of them so suddenly that they seemed to have been struck down dead. Throughout the country the people in their blind terror accused the Jews of having poisoned the wells, so ignorant were they of even the probable origin of the distemper; and, of course, the persecuted race were butchered without mercy. The Government were as ignorant of sanitation as the mob, and Philippe of Valois issued some edicts which seemed rather calculated to incite than to allay the popular fury, for he commanded all blasphemers to be punished for the first offence by the loss of one lip, by the loss of the other for the second offence, and by the excision of the tongue for the third.

Germany was less severely visited, and yet a million and a quarter were carried away. Austria, however, suffered severely, for at Vienna twelve hundred died daily. Many houses became desolate, it was forbidden to bury in the city, and six great pits were accordingly dug outside, into which corpses were thrown by the thousand. Other towns were in similar doleful plight, for at Erfurt sixteen thousand perished, at Strasburg sixteen thousand, at Weimar five thousand, at Lübeck nine thousand, and at Basle fourteen thousand.

The sea offered no protection against the contagion, for if one infected person were on board the ship every soul perished, and many a vessel floated about the English Channel and North Sea like some "Flying Dutchman," with nothing but corpses on board; and the infection spread wherever the vessel was wrecked. In this way the plague reached the British Islands and the Scandinavian north.

It was thus that the Black Death broke out on the coast of Dorsetshire in the year 1349. A few days afterwards it had reached Devonshire, and shortly afterwards the whole kingdom was groaning under the infliction. In London so many died—at one time it reached as many as two hundred a day—that all the existing churchyards were filled, so that other burying-places became necessary, pits, fields, and other unconsecrated places being freely used. Ralph Stratford, Bishop of London, bought three acres of land known as No Man's Land, and, having consecrated them, built a chapel and consecrated a graveyard, long afterwards called Pardon Churchyard. This not proving sufficient, Sir Walter Manny, whose name figures so well in the French wars of King Edward, bought the Spital Croft of thirteen acres next adjoining, and built thereon a chapel known as New Church Haw. The site of these two plots of about sixteen acres is now Charterhouse-square and its neighbourhood; New Church Haw having, by further endowments from Sir Walter Manny, developed into the Carthusian Priory, now more celebrated as Charterhouse School. About fifty thousand corpses were deposited in these two plots; but at least double that number perished in London. So great, indeed, was the mortality that the courts of justice were closed. In Bristol so many were carried away that the city was like a dead place, and grass grew several inches high over Broad-street and High-street. Two thousand died at Leicester, and so on all over the kingdom. It is said that at least one-third of the population perished. Strafford, Archbishop of Canterbury, having died in 1348, the King nominated John de Ufford as his successor, but he died of the prevailing epidemic in 1349, before consecration, as did also his successor, Bradwardine. So great was the mortality among the clergy, that they were forced to admit young men, almost boys, to become rectors; and a Bull of Pope Clement authorised the Bishop of Norwich to admit sixty clerks, though only twenty-one years of age, to hold livings, as about a thousand churches in that diocese were void of incumbents. Indeed, England suffered with such peculiar severity that people became suddenly pious, and so indifferent to worldly matters that commercial rates were ridiculously low. At the same time there also prevailed a murrain among the sheep which "putrefied them in such a manner that neither birds nor beasts would touch them." In most countries the plague stalked through with rapid strides, but here it lingered—a terrible condemnation of our ignorance of sanitary affairs in those days—as if it loved us. The harvest, a good one, and much needed, rotted on the ground for want of labourers; and, of course, a famine followed. Indeed, some writers go so far as to say that, with one disaster or another, nine out of every ten perished, but this is probably only true for a few isolated districts.

Ireland and Scotland, whither the plague was carried by refugees, suffered severely enough, it is true, but comparatively much less than England. Scandinavia, Iceland, and Greenland were attacked in the later portion of the year 1349, principally through the wreck on their coasts of infected vessels.

Dynamite Pills.—A singular instance of cure by mental excitement produced through the agency of "dynamite pills," in the case of a hysterical woman, 26 years of age, suffering from spasmodic contractions with paralysis of the lower limbs, which had affected her over two years, is reported by Messrs. Landousky & Ballet. She was directed to divide two pills, described as "fulminating pills," into four halves, one for each dose, and that she was to observe the greatest care in taking them. On the following day she stated that she had tried to poison herself by taking the whole of the pills at once; that they had had a terrible effect upon her, but that her complaint was completely cured. The pills were composed of bread-crumbs only.

Metallised Wood.—Hard woods after passing through the following treatment, called Rubennick process, when dry, are susceptible of a high polish by burnishing, and even a metallic lustre, the brilliancy of which is enhanced if the surface has been rubbed previously with lead, tin, or zinc plates, and then burnished with a glass or agate burnisher. The timber is first immersed in a bath of caustic alkaline lye, in which it is allowed to soak for two or three days, according to the degree of porosity of the wood, at a temperature of 167 deg. to 194 deg. F. From this bath the wood is shifted to another of hyposulphate of calcium, to which is added, after twenty-four or thirty-six hours, a concentrated solution of sulphur. Here it remains for about forty-eight hours at a temperature of 95 deg. to 122 deg. F., and lastly immersed in a solution of acetate of lead for thirty to fifty hours at the same temperature.

A Valuable Invention.—It is gratifying to learn that Mr. R. Adams, of 17, Blackman-street, London, S.E., whose fanlight-openers and silent door-springs are being extensively used, has received large orders for his Patent Reversible Window. The sashes, although they slide up and down in the usual way, can be instantly turned inside out, enabling anyone to clean each side of the glass with ease, while standing in the room.—[Advt.]

Personal Health

"Be timely wise;
With health all taste of pleasure flies."—*Gay.*

WHY WE EAT OUR DINNER.

By Dr. Andrew Wilson.

(From an article in *Belgravia* for February, entitled "An Invitation to Dinner."

One now begins to gain a glimpse of the fashion in which life-science answers the question, Why do we eat our dinner? When we begin to conceive that the human body is, in one sense, a mere machine, which performs elaborate and complex chemical and physical work, and which, moreover, is always in action, more or less completely, we are able to understand the basis on which physiology rests its final reply concerning the philosophy involved in Smith's invitation to dinner. But to render the position of the scientist still more evident, we may inquire a little more exactly into some of the details of bodily work—including under this latter term the mental side of matters equally with the physical aspects of life. And firstly, What, one may ask, are the proofs that this wear and tear of body represent an actual fact of existence? The candle, which disappears as it burns, only changes the form of the materials of which it consists. Chemically treated, weight for weight of waste products (gas, water, &c.), into which the candle has been resolved, could be produced, as evidence that the matter of the taper has merely undergone a change of form after all.

There is no period of day or night during which cessation from work is possible to the body. If we suppose that the Professor in the scales consented to trouble himself neither about to-day nor concerning to morrow, and to allow his muscles as well as his cerebral organ to remain as thoroughly passive as might be, he would still remind us of breakfast, lunch, and dinner; and, apart from habit altogether, would feel perfectly ready and willing to join us at table when the "joyful sound" of gong or bell reached his ears. Nor would he be at any loss to reply to the obvious remark that, as he had done no work, he could have no reasonable expectation of participation in the delights of the table. He would require us to note, firstly, that he had been working, even while resting; secondly, that his work was unavoidable; and thirdly, that from its serious nature it necessitated speedy repair. The heart can be shown to perform in each twenty-four hours of its existence an amount of work which can be legitimately termed of prodigious extent. Calculations of very exact nature have been made regarding the work done by the central organ of the circulation. The heart is a hollow muscle; hollow, to allow blood to pass through its chambers, and a muscle, that it may contract to expel the blood forth into the vessels. The heart's work is, therefore, as purely muscular work as is the lifting of weights or the movements of walking. Now, the "unit of work," as the basis of calculating the amount of labour expended in any given action, is an expression which, plainly stated, may be taken to mean that amount of energy (or "power of doing work") required to raise a unit of weight (1 lb.) through a unit of height (1 foot).

The heart is composed of four compartments or chambers. Two are "auricles," which receive blood from body and lungs respectively, and which propel the blood each into the larger chamber (or "ventricle") with which the auricle of each side is in free communication. If the weight of the blood which is expelled by the sharp contraction of each ventricle is multiplied by the height to which the blood rises in a tube placed in communication with the outlet of the ventricle, we obtain in the result the work done by each of these larger chambers of the heart. It has been found that the height to which the blood is sent in the tube is about nine feet. The weight of the blood expelled at each contraction of the left ventricle of the heart is about four ounces. The multiplication of these numbers, therefore, gives us $2\frac{1}{4}$ foot-pounds—that is, a force capable of raising that number of pounds one foot high—as the work performed at each contraction of the left ventricle. The right ventricle's work measures only one-third that of the left; the right side of the heart being less powerful than the left, and being occupied with driving blood simply to the lungs, whilst the left side propels blood through the entire system. The addition of the work of right and left sides, therefore, gives us three "foot-pounds" as the total work of the heart at each beat or contraction. But in an adult person there are performed at some seventy-five or seventy-six such contractions per minute. At this rate, in twenty-four hours the heart must perform a startling amount of work. If we could gather all the force expended by the human heart in twenty-four hours into one huge lift, it would suffice to raise at least 120 tons weight one foot high. After such a revelation, it would be easy for us to accept hunger and thirst as the perfectly rational symptoms of a lazy man. With the fact at hand of a bodily pumping-engine constantly at work within his frame, he would require no further proof of his right to replenish the wear and tear of his body by regular attendance at meals. The idle man must needs eat and drink—for common idleness has, at least, a physiological justification at its back in the shape of the aphorism that whatever the hands find to do, the bodily organisation knows no rest or cessation from its labour and its toil.

It can be shown that the work of the heart is not the only labour which the ordinary processes of life entail. The function of breathing is practically as incessant in its operation as that of the heart. The rise and fall of the chest include, and are effected through, the work of a multiplicity of structures, such as ribs, chest-muscles, midriff, and lungs. When we read that there pass in twenty-four hours through the lungs of an adult at rest some 686,000 cubic inches of air—a quantity increased in the same period to 1,568,390 cubic inches in the hard-working subject—we may judge that the work and labour of breathing may fitly enough be ranked with that of the heart in respect of its magnitude. There exists a large amount of natural resistance offered by the elastic nature of the lungs and chest, and which has to be overcome by the muscles employed in breathing. It has been shown that the force which has to be overcome by these muscles in the act of breathing in 200 cubic inches of air exceeds 450 pounds. In ordinary breathing, the elastic force we require to overcome equals at least 170 pounds. With these details at hand, there is little need to further emphasise the fact that the stillest of lives is in reality a long spell of continuous work. In twenty-four hours the muscles of breathing alone perform an amount of work equal to the work of raising 21 tons one foot

Sanitary Inspections.—Fee for Survey and Report, in London, 2 Guineas. Estimate given and Improvement Works carried out when required.—The Sanitary Engineering Co., 115, Victoria-street, Westminster, S.W.—[Advt.]

More about Kola Nut.—Messrs. Heyman & Phillips, of 15, Clifford-street, Bond-street, W., are grateful to the Editor of Health for his interesting article in the issue of January 11th. The Kola Nut on sale, 2s. 9d. a box, from them or from all chemists. —[Advt.]

high. Adding this amount to the force exerted by the heart, we may understand that even the quiet moments of our lives are attended by and carried on through work of a very severe character; and this even when the almost endless work of the brain in thought, and of the nerve-centres in controlling the bodily actions, is entirely set aside and overlooked in our calculation.

Returning for a moment to the subject whom we left in the scales, we may be required to specify the exact form in which the bodily substance of the subject experimented upon has disappeared in the acts and processes of life. Briefly stated, so much of our material substance is given off from skin and lungs, for example, in the form of water, part is excreted in the shape of carbonic acid gas, which thus becomes available as food for green plants; and part of the wear and tear is likewise given off in the form of heat, a curious substance called urea, ammonia, and mineral matters. In other words, our bodies, as the result of the work they perform, are perpetually being dissipated into so much heat, water, carbonic acid gas, and other substances. The animal frame is constantly breaking down into these inorganic matters, and is thus at once finding a lower level of existence and supplying the plant world with the matters from which the life of the vegetable kingdom will evolve new growths and fresh generations. Well might Erasmus Darwin write—

> Hence, when a monarch or a mushroom dies,
> Awhile extinct the organic matter lies,
> But as a few short hours or years revolve,
> Alchemic power the changing forms dissolve;
> Emerging matter from the grave returns,
> Fills new desires, with new sensation burns.

If it is true that "in the midst of life we are in death," it is no less true that from the physiological charnel-house into which living beings are perpetually doomed to pass, new forms take their origin. These are fed by the matter which, having done duty in living bodies, is, after a period of so-called decay, woven anew into the textures of succeeding generations of animals and plants.

How Drugs Affect the Secretion of Milk in Animals.—Action of various drugs on milk secretion has been investigated by Professor Stumpf, a German physiologist, by a set of observations made on goats. The following are the more noteworthy results that have been obtained:—*Iodide of Potassium.*—When this salt was administered, the yield of milk was reduced, while the percentage of fat and sugar in the milk was raised; salts and albuminoids were unaltered; the reaction of the milk became alkaline. *Acetate of Lead.*—Small doses of acetate of lead produced no change of composition nor of the yield. *Morphine.*—The same results were obtained as with acetate of lead. *Pilocarpine.*—This substance at first only reduced the quantity of sugar present in the sample of milk. *Salicylate of Soda.*—This salt occasioned a considerable rise in the yield of goats' milk, but we are not told whether it was continuous. *Alcohol* did not alter the yield, but the amount of solids in the milk increased. *Beer.*—When beer was given to the goats, the specific gravity of the milk fell, and there was more fat and sugar in the product. The only result of much interest is that which the author has obtained with *salicylate of soda.* He says that "Sodium salicylate considerably raised the yield." This is a subject worth looking into, the more so as Mr. Stumpf does not appear to have repeated the experiment, nor to have ascertained in what manner the salicylate of soda acted upon the system to produce this result.

The Family Circle

"The child is father of the man."—*Wordsworth.*
"In bringing up a child, think of its old age."—*Joubert.*

A WORD FOR THE BABIES.

"The child is father of the man," says Wordsworth, and a greater than Wordsworth, probably with the same thought in his mind, said, "Train up a child in the way he should go, and when he is old he will not depart from it." If this be true regarding the mental and moral life, no less true is it with respect to the physical existence. No one could expect a half-starved, wholly neglected infant,—kept in life, as it would seem, merely by that mysterious special Providence which we are wont to say "looks after bairns,"—to grow by-and-by into a strong and healthy man or woman, delighting the eye with a perfect physical beauty of form and feature; while, on the other hand, it is a well-known fact that even very delicate children may by careful training and nursing grow up into vigorous and useful members of society. It is our opinion that there is a vast amount of unknown and unnecessary pain and weakness in the world, and many infirmities which are quietly borne in ignorance by men and women who simply do not know what perfect health means, and are therefore not surprised, only patiently submissive, when they suffer day after day from lassitude, headaches, weak backs, and unutterable weariness. That such people have their early training to thank for this sad state of things there can be little doubt; and therefore it would not be amiss if those who have the charge of children were to give a little intelligent attention to the few particulars which we intend to bring before the reader's notice. We know that

> Evil is wrought
> By want of thought
> As well as want of heart.

And, although there is not, let us hope, one woman in a thousand who would willingly cause suffering to a little tender child, there are many, we fear, who in various ways err through ignorance.

The first thing we wish to call attention to is the fact that very young babies should not be encouraged to "sit up." When we consider what a weak, helpless body a new-born infant has, with nothing in the way of muscles, and not much as regards a reliable back-bone, we cannot but wonder at the delight with which many young mothers and nurses regard the poor little wobbling bundle in their arms, when they exclaim, "How early he has begun to sit up and take notice!" Let the infant "take notice" as much as he likes by all means, but insist that he should do so *lying on his back.*

A child who has never been taught to sit up, has naturally no other notion of existence than a recumbent position, and will remain good and quiet for hours together, lying so in his cradle or on soft pillows, while the poor little being who has been tossed up and laid down from the time he was three weeks old, will undoubtedly tease his nurse by dissatisfied wailing, if expected to do the same for ten minutes.

In the new sanitary mode of dressing infants, which at present is much recommended by medical men, the old tight flannel *binder* is almost altogether discarded. And why? Because no infant requires artificial support while

The "Spécialité" Lime Juice, for family daily use throughout the year, has not the usual musty flavour; will not turn mouldy; may be obtained of Chemists and Grocers.—Feltoe & Sons, Albemarle-street, London, W.—[Advt.]

he is on his back, and by the time he is four months old, which is the earliest age at which he should be allowed to sit up, his back has gained sufficient strength to enable him to do so without danger. Of course, care must be taken even then that he does not overdo it, but the liability to do so is obviously lessened. There is little doubt that an infant thus carefully watched, runs a better chance of possessing a strong, straight, well-developed frame, than those who are allowed too early in life to strain their poor little backs.

The idea of strength is closely connected in most minds with that of beauty, and, from considering how to make our children strong, we pass easily to the endeavour to make them beautiful. We all know the fable of the sportsman and the snipe, the moral of which is that all mothers think their own children the most beautiful. Whether this is true in all cases we cannot be certain, but at least no one will blame a mother for endeavouring to make her little ones as beautiful as possible. And this is not to be done by decking them out in fine clothes, which check the freedom of their limbs, or wearying their lives by a minute attention to details in the matter of curling hair, tying sashes, and fitting their feet into tight boots—but by a careful and living supervision of all those trifles which make up the sum of a healthy, happy life. We could almost apologise for alluding to a fact so insignificant (except that we consider nothing which conduces to health and comfort unworthy of notice), but many nurses are very careless in dressing young children. Drying them carelessly, for instance, after a bath, and so causing rough places on their little bodies, which may become irritating, and even sore; tying strings so tight as to leave red marks on the tender skin; and often, too often, crumpling up their delicate ears when laying them down to sleep or tying their bonnets on. What can be more ugly than prominent or badly-shaped ears in man or woman, and yet how often they are caused by want of attention and careless haste?

Perambulators are in many cases necessary, but where it is possible a child is better carried in the arms than driven, as we too often see them, fast asleep, with their heavy little heads hanging over the side. Such a position, repeated day after day, is sufficient to cause curvature of the spine, the careless exposure of neck and arms may cause a chill, and the child cannot derive half as much benefit from being in the open air as when he is kept awake and bright enough to enjoy it. The best perambulators are those in which the child sits facing the nurse, with a hood at his back, which can be raised to protect him from the cold wind. A good nurse will see that her little charge sits straight, does not *loll* on one side; and will, by talking to him, keep him lively, and, by drawing his attention to different objects, will prevent his falling asleep or growing weary. She will probably find on their return that the child will eat his meal with better appetite, and sleep all the better when the proper time comes for being kept awake and intelligent during his airing.

We need hardly say that these remarks are not addressed to those who possess experienced nurses, who *ought* to think for themselves, but rather to the many mothers who are compelled by circumstances to leave the care of their children very much to young and inexperienced girls, who, however anxious they may be to perform their duties faithfully, have neither the sense nor the knowledge which would enable them to do so.

Pownceby's Pure Wines and Brandies, as analysed, and especially selected to suit medicinal purposes, may be obtained in small quantities at wholesale prices. Free delivery within fifty miles. Circular and price current by post from Pownceby & Co., Wine and Brandy Importers, 183, Oxford-street London, W.—[Advt.]

OUR USEFUL NOTE-BOOK.

"When found, make a note of."—*Captain Cuttle.*

How to make Smelling Salts.—Among the many formulæ for smelling salts, the following are much used, and will furnish a satisfactory article:—"Inexhaustible Smelling Salts" (so called) is thus prepared: Water of ammonia, 1 pint; oil of rosemary, 1 drachm; oil of lavender, 1 drachm; oil of bergamot, ½ drachm; oil of cloves, ½ drachm. Mix the whole together with agitation in a very strong and well-stoppered bottle. The mixture is used by filling the smelling-bottles with any porous absorbent material, such as asbestos, or, what is better, sponge cuttings that have been well beaten, washed, and dried. After the bottles are filled with the sponge, it is thoroughly saturated with the scented ammonia, but no more is poured in than the sponge will retain when the bottles are inverted; as, if by any chance the ammonia runs out, and is spilt over certain coloured fabrics, it causes a stain. For transparent coloured bottles, instead of sponge, the perfumers use what they call "insoluble crystal salts" (sulphate of potassium). The bottles being filled with crystals, are covered either with the liquid ammonia, scented as above, or with spirit of ammonia (alcohol saturated with ammoniacal gas). The necks of the bottles are filled with a piece of white cotton; otherwise, when inverted, from the non-absorbent quality of the crystals, the ammonia runs out, and causes complaints to be made. The crystals are prettier in coloured bottles than the sponge; but in plain bottles the sponge appears quite as handsome, and, as before observed, it holds the ammonia better than any other material. Perfumers sell also what is called "White Smelling Salts" and "Preston Salts." The White Smelling Salt is the "sesquicarbonate of ammonia" in powder, with which is mixed any perfuming oil that is thought fit—oil of lavender giving, as a general rule, the most satisfaction. The contents of a bottle so filled soon lose their pungency, and a nearly inodorous residue remains. This objection is partly removed by following Mr. Allchin's plan, the first step of which is to convert the "sesquicarbonate" into the "mono-carbonate of ammonia," which is accomplished in the following way:—Forty ounces of sesquicarbonate of ammonia are broken into fragments, about the size of filberts, and placed in a jar having a well-fitting lid. Into this is afterwards poured twenty ounces of stronger water of ammonia. This mixture is frequently stirred for a week, and the jar is then set aside in a cool place for three or four more weeks. If the mixture is not stirred for the first week, it sets as hard as a stone; after stirring, however, it becomes solid and dry, but can be easily removed from the jar. It is now reduced to a roughish powder, something like granular carbonate of potassium, and in that state it is ready for filling the bottles, and some volatile essence, or strong ammonia perfumed with essential oils is added. The volatile essence Mr. Allchin uses and recommends as follows:—English oil of lavender and tincture of musk, of each, 4 drachms; oil of bergamot, 2 drachms; oil of cloves, 1 drachm; oil of rose, 15 drops; oil of cinnamon, 5 drops; stronger water of ammonia, 1 pint.

How to make Eau de Brettfeld.—Digest 230 parts of Florentine orris-root with 2,000 pasts of Cologne spirit for three days in a warm place. On the other hand, dissolve

Dr. Nichols' Penny Vegetarian Cookery-Book.—Every household should possess this marvel of cheapness. Free for 1½d.—Nichols & Co., 23, Oxford-street, London, W.—[Advt.]

The "Boncontour" Stay-Belt and other Orthopædic Apparatus, made by K. R. Schramm, Orthopædic Mechanician, 64, Belmont-street, Chalk Farm-road, London, W.—[Advt.]

70 drops of oil of lemon, 60 drops of pure oil of rose, 70 drops of oil of neroli (bigarade) in 300 parts of Cologne spirit, and digest 0·15 parts of musk in the solution. Finally mix the two liquids and filter. The product has an agreeable violet-like odour. The residuary orris-root may be used for other purposes, such as "pot-pourri," &c.

How to make Eau de Cologne.—A very pleasant and refreshing Eau de Cologne, much resembling that sold with the trade-mark "Springbrunn," may be obtained as follows:—Dissolve 15 parts of oil of orange-peel, 15 of oil of lemon, and 6 of oil of bergamot in 3,000 parts of finest Cologne-spirit. (It is absolutely necessary that only the purest and finest oils and alcohol be used.) Also dissolve 1 part of oil of neroli (pétale) and 1·5 parts of oil of orange (petit grains) in 1,000 parts finest rectified rye spirit. After standing for five or ten days, both liquids are mixed. It is best to distil the mixture, since the odours are better blended thereby; but it may also be aged by allowing it to stand for a time. To the distillate are added 2 parts of the finest oil of rosemary, and the liquid then put up in small well-corked vials, which must be kept in a cool, shady place.

Some Springfield physicians are speculating upon the influence of the telephone upon the sense of hearing. They have found several cases wherein disease of the ear is said to have been aggravated by using it.

Neuralgia and Headaches in Girls.—Nothing is so terrible as severe neuralgia, and beyond a doubt girls acquire it often enough by the conditions of school life. Headaches in a school-girl usually mean exhausted nerve-power through over-work, over-excitement, over-anxiety, or bad air. Rest, a good laugh, or a country walk will usually cure it readily enough to begin with. But to become subject to headaches is a very serious matter, and all such nervous diseases have a nasty tendency to recur, to become periodic, to be set up by the same causes, to become an organic habit of the body. For any woman to become liable to severe neuralgia is a most terrible thing. It means that while it lasts life is not worth having. It paralyses the power to work, it deprives her of the power to enjoy anything, it tends towards irritability of temper, it tempts to the use of narcotics and stimulants.

Wood Pavements in Paris.—It has been a source of some surprise that Paris, which has long enjoyed an enviable reputation for its fine streets and excellent pavements, should have committed itself to wood pavements. After what seemed to be a satisfactory test, a contract has been entered into with "The Improved Wood Pavement Company" of England to pave some of the principal streets and boulevards, including the Champs Elysées. The price paid is 4·85 f. per square mètre, to be paid annually for eighteen years. The process employed, as described in *La Semaine des Constructeurs*, consists in first laying a bed of béton and Portland cement six inches thick, covered with a thin layer of the cement about half-an-inch thick. The béton consists of one part by measure of Portland cement and two parts of a mixture of pebbles and sand, in the proportion of two of the former to one of the latter. The cement is mixed with as little water as possible. On this foundation are placed the blocks of wood, which are of red spruce, nine inches long, six inches thick, and three inches wide. The joints, which are about a fourth of an inch wide, are filled at the lower part with bitumen, and then above is a thin paste of cement which is poured or brushed into the cracks. The blocks are brought from England cut to the proper size and creosoted on the surface.

Healthy Houses

"A happy home must be a healthy home."—*Anon.*

THE HEATING OF HOUSES.

FIRST PAPER.—STOVE-HEATING.

By Dr. A. W. Bell.

(From the *North American Review*.)

So much has been said recently about the germ origin of disease, that people generally are in danger of having their attention diverted from prevalent tangible causes of disease within easy control, while catching at shadows. First among the controllable causes of ill-health in temperate and cold climates is an excessively variable or foul indoor atmosphere, due to defects in the mode of warming houses. Exposure to a temperature much below that of animal heat for any considerable time always weakens vitality and increases the susceptibility to disease. Hence, the economy of heat is a primary element in the art of preserving health. Of the common means to this end—clothing, houses, and fire—the last only is the subject of this article, and with special reference to the relative merits, from the sanitary point of view, of stoves and furnaces as compared with steam. Simply to obtain the necessary degree of temperature would be an easy matter, but ventilation must be constantly kept in view, and this cannot be secured without some sacrifice of heat. Time was when the open fireplace was regarded as the *conditio sine quâ non* of health; but, as Rumford put it, "while the draughts chill one part of the body, the rest is roasted by the fire in the fireplace, and this cannot but be injurious to health."

A close stove, everybody knows, is simply a hollow cylinder, or box, made of metal, brick, or earthenware, which is heated by a fire within it, and gives out its heat to the air by contact, and to surrounding solid objects by radiation. In an economical point of view it excels all other means of warming. The heated air from a fire-place is available to the apartment for only about twelve per cent. of the total amount of heat produced, all the rest passes up the chimney. The close stove, on the contrary, utilises from eighty-five to ninety per cent. of the heat produced, and loses through the smoke-pipe only about as much as the open fire-place saves—ten to fifteen per cent. And herein lies the striking difference between the relative healthiness of the atmosphere heated by a close stove and an open fire-place. The amount of air which hourly passes through a close stove, heated with a brisk fire, is, on an average, equal to only about one-tenth of the capacity of the room warmed, and consequently such stove requires, if unaided, ten hours to effect a change of the atmosphere in every such apartment. Thus stagnant and heated, the air becomes filled with the impurities of respiration and cutaneous transpiration.

Moisture, too, is an important consideration. The atmosphere, whether within doors or without, can only contain a certain proportion of moisture to each cubit foot, and no more, according to temperature. At eighty degrees it is capable of containing five times as much as at thirty-two degrees. Hence, an atmosphere at thirty-two degrees, with its requisite supply of moisture, introduced into a confined space and heated up to eighty degrees, has its capacity for moisture so increased as to dry and wither everything with which it comes in contact; furniture cracks and warps, seams open in the moulding, wainscoting, and doors; plants die; ophthalmia, catarrh, and bronchitis are common family complaints, and con-

sumption is not infrequent. But this condition of house air is not peculiar to stove-heat. It is equally true of any overheated and confined atmosphere. The chief difference is, that warming the air by means of a close stove is more quickly accomplished and more easily kept up than by any other means. Sometimes, by the scorching of dust afloat in the atmosphere, an unpleasant odour is evolved which is erroneously supposed to be a special indication of impurity, caused by the burning air. It is an indication of excessive heat of the stove. But the air cannot be said to burn in any true sense of the word, for it continues to possess its due proportion of elementary constituents. Such is the close stove and its dangers, under the most unfavourable circumstances. The Dutch-stove is occasionally found in country railroad depôts and similar places, where the frequent opening of doors makes amends for its deficiencies. In Russia, and other northern countries of Europe, stoves are frequently built of brick covered with porcelain, with relatively small fire-chambers near the bottom, and with winding smoke-flues which traverse many times through the structure, until nearly the whole of the heat generated is expended in it. The smoke-pipe, now comparatively cool, enters a flue in the wall and carries off the smoke only, while the heated mass of brick continues to retain heat and warm the room long after all the fuel is burned—for from eight to ten hours. If the same quantity of fuel were burned in an open fire-grate or close stove the heat therefrom would be expended in an hour.

Stoves have been so improved in recent years, in the United States especially, and are obtainable at such moderate expense, that no excuse for the continued use of such as have been above described now exists. Indeed, so important and rapid have been the improvements in the construction of stoves in the United States within the last eight or ten years, that it is difficult to find a market for those of older date. In England, where the people continue to be wedded to open grates, and where most is said by scientific persons against the use of stoves, improvements have been exceedingly slow and complicated, and the practicability of maintaining a sufficient and equable temperature and a wholesome atmosphere in a room warmed by a stove, is far from being realised; still less the convenience of warming several rooms at the same time by the same means, hot-air furnaces scarcely being known.

The essentials for healthy stove-heat are a brick-lined fire-chamber, exhaust-flue for foul air, means for supplying moisture, and provision for fresh-air supply. A brick lining is requisite for the double purpose of preventing overheating, and for retaining heat in the stove. For the supply of moisture the means are simple and easy of control, but often inadequate. An efficient foul-air shaft may be fitted to the commonest of close stoves by simply enclosing the smoke-pipe in a jacket—that is, in a pipe of two or three inches greater diameter. This should be braced round the smoke-pipe, and left open at the end next the stove. At its entry into the chimney, or in its passage through the roof of a car, as the case may be, a perforated collar should separate it from the smoke-pipe. For stoves with a short horizontal smoke-pipe, passing through a fire-board, the latter should always be raised about three inches from the floor. A smoke-pipe thus jacketed, or fire-board so raised at the bottom, affords ample provision for the escape of foul air.

Pure Water is such a vital necessity that, without it, illness is certain. None are more prone to the ill effects when impure than the young. To ensure a pure supply send a post-card to the London and General Water Purifying Company, Limited, 157, Strand, London, W.C., who will return particulars post free.—[Advt.]

The introduction of fresh air is a comparatively easy matter, when by no more special provision than by a strip of board under the window-sash, closely fitted. The lap of the sash at the middle admits the air with a direction to the ceiling, and, consequently, without draft on any one in the room.

The experiments of Pettenkoffer have shown that under the common conditions of the atmosphere a very considerable exchange of gases takes place through dry plastered walls, brick, and stone; and it is the common experience of sick persons that they are sensitive to drafts through walls when the wind blows, and that they frequently take cold by exposure to the windy side of the house.

(To be continued.)

SPONGE-CULTURE IN FLORIDA.

The United States national museum has lately received from Messrs. McKesson & Robbins, sponge-importers, of New York, an interesting contribution representing the first successful attempts at sponge-cultivation on the American coast. It consists of only four specimens, all of the finest or sheep's wool variety, which was raised from cuttings at Key West, Florida, by the agent of the above-named firm. The localities in which the sponges were planted were not the most favourable for sponge-development, and their growth was therefore less rapid and perfect than might otherwise have been the case. They were fastened to the bottom, in a depth of two feet and a half, by means of wires or sticks running through them, and allowed to remain down a period of about six months before they were taken up. Fully four months elapsed before they recovered from the injury done them in the cutting, which removes the outer "skin" along the edges of the section; and the actual growth exhibited was for about two months only. The original height of each of the cuttings was about two inches and a half. One was planted in a cove or bight where there was little or no current, and its increase in size was very slight. The other specimens were placed in tide-ways, and have grown to from four to six times their former bulk, which certainly promises well for the future of sponge-propagation. Two hundred and sixteen specimens in all were planted at the same date, and, at the last accounts, those which remained were doing finely.

The chief obstacle to the artificial cultivation of sponges at Key West arises from the fact that the sponge-fishermen infest every part of the region where sponges are likely to grow, and there is no legal protection for the would-be culturists against intruders. The enactment of judicious laws bearing upon this subject by the state of Florida, or the granting of special privileges conferring the right to occupy certain prescribed areas for sponge-propagation, would undoubtedly tend to increase the annual production of this important fishery, which has remained at a standstill for several years past, mainly because of the partial exhaustion of several of the most extensive sponging-areas.

Accompanying these artificial growths was a collection of over a hundred specimens of the various grades of Florida sponges of different sizes, each labelled with its supposed age, based upon estimates of the average rate of growth, by the sponge-collectors.

We have it upon the authority of the *Scientific American* that the immense crematory at Rome is in almost daily use. Cremation is becoming daily more popular and bids fair soon to dispose of more corpses in the Italian capital than old-fashioned burials.

Recreation and Health

"Health is the vital principle of bliss,
And Exercise of health."—*Thomson.*

CALISTHENICS, OR LESSONS IN PHYSICAL EDUCATION.

By H. C. Standage.

THIRD PAPER.

The "turnings" described in the last paper enable one to move in a graceful manner, and it is the preliminary exercise to acquiring command over the movements of the lower limbs and the balance of the body. There is yet another exercise, however, that should be gone through to enable the pupil to acquire perfect command, so as to be able to walk without effort, awkwardness, jolting, or jerking up and down, or swinging from side to side. This exercise is the "balance" or "goose" step.

Some one has said you can tell a man's disposition by his walk. Whether you can or not I leave an open question; but certain it is that nine-tenths of the persons you meet seldom walk correctly, much less gracefully. The business man, with his head and shoulders bent forward, plunges along, trotting out his legs like the piston-rod of an engine when getting up steam, so anxious is he to commence his business of the day. Get on the opposite side of the street and watch this man: his body is carried forward by two limbs that swing backward and forward as if they were part and parcel of a machine. His is not an easy walk; it gets him over the ground in quicker time than a long, steady swing of the legs would; but at the same time it does him harm, for his mental anxiety not to lose a moment causes his limbs to keep pace with his mind, with the consequence that he is all in a turmoil and perturbed state on reaching his destination. Again, observe the walk of a butler, or indoor man-servant; being always on the go, up and down stairs, and ever ready to be obsequiously at hand when wanted, these servants acquire a short, quick, bustling, fussy kind of step, that makes them appear to be ever busy. When they go into the street, they walk with this bustling, busy step which reminds one very much of the restaurant-waiter, with his ever ready answer, "Yes, sir," "comin', sir." Descending a step lower, observe the ordinary mechanic, or workman, with his legs bent at the knees, pushed forward like a crank; he renders himself half-an-inch or so shorter by bending his knees, instead of walking straight from the hips. Contrast with his unsteady, awkward gait, the ambling, slouching dawdle of the fop; his feet seem as if they had suckers that glued them to the pavement, and as if it were a great pain and effort to drag his legs after him.

With women, too, some bump up and down at each step, like an india-rubber ball; others, again, go swaying along, sweeping the pavement with their skirts, and wriggling their body about as if their body and limbs were united by a ball and socket-joint (I have no wish to be offensive, but this is the nearest approach to the movement of those ladies with abnormally pinched-in waists). Others, again, go pittity-pat, pittity-pat, with their one-two, one-two steps, in a kind of leap and bound sort of movement. Every one of these modes of progression is totally devoid of gracefulness, and is infinitely more tiring and wearisome than a firm, easy-swinging balanced step, swung from the hip.

Not one of the types above mentioned walk in a natural way. Why? Because they have never been taught how to balance their bodies while alternately raising the feet in walking. Watch a Lifeguardsman or well-drilled soldier; does he jerk his shoulders about or swing his body? No; shoulders and body are perfectly still, and are carried forward steadily as each limb takes a fresh step. A well-drilled gentleman or lady, walking correctly, will pass by your side without you being aware of their presence; no fussy, noisy movement heralding their approach. They will glide by without the least apparent effort.

The exercise I am about to describe will enable the pupil to walk thus gracefully and naturally.

For the sake of being definite and practical in the instructions, I will imagine I have a class of pupils before me, and as these papers are intended chiefly to be devoted to such exercises as can be performed by girls and young boys, I will suppose the class to consist of such.

On the word "Attention!" the pupils will form up in line (that is, by the side of each other), about a yard apart, their feet turned out at an angle of forty-five degrees, and arms down by their side or else folded across their chest. On the command "Step to the front!" they will balance the weight of the body on the left leg, and advance the right leg forward, but not resting it on the ground.

In this movement the leg should be straight and stiff at the knee, the leg being swung forward from the hip only. The sole of the foot must be parallel with the ground, the toes compressed and slightly pointing downwards, so that if the foot were placed on the ground the ball of the foot would be the point to rest there (and not the heel, which is too frequently the point to strike the ground in ordinary walking).

On the command "Step to the rear," the leg must be swung backwards, the knee straight, and the foot must be so turned on the ankle that, in swinging from front to rear, the sole of the foot is kept parallel with the ground.

Be careful that in stepping to the rear the toes do not point to the ground. Considerable difficulty will be experienced in keeping the balance, which can only be overcome by practice. The commands, "Step to the front," "Step to the rear," should be given at intervals of half a second for five or six consecutive times, the pupil then allowed to rest, and the same movements gone through with the left leg.

In no case must the moving leg be allowed to touch the ground, for if it did no good would result from the exercise. After two or three lessons in this exercise, the pupil will gain such command over the muscles of the thigh, the tendons behind the knee, and the movement of the foot at the ankle, that he will be able to step out gracefully in walking; keeping the leg straight, not bent at the knee, the movement being done from the hip joint. When the power of balancing on one leg is acquired, the "slow march" should be performed. thus: Assume the position of "attention," as in the last exercise, and on the command "Slow-march," "left," "right," each pupil takes a step forward of 30 inches with his left leg, and then one of similar length with the right, each step forward being taken at intervals of one second. Of course between the intervals of stepping the pupil will be resting on both feet, with legs 30 inches apart. Each foot must be placed on the ground flat—not the toe or heel touching first. This slow march should be kept up for a dozen or two yards, being very precise as to the time between each step, the steadiness of the pupil, and the length of the step. The march should then be performed backwards, each pupil stepping to the rear, keeping his eyes to the front.

International Health Exhibition.

LONDON, 1884.

We publish to-day the first of a series of descriptive papers culled from official sources, and descriptive of the objects of the above Exhibition.

The object of the Exhibition will be to illustrate, as vividly and in as practical a manner as possible, Food, Dress, the Dwelling, the School and the Workshop, as affecting the conditions of healthful life, and also to bring into public notice the most recent Appliances for Elementary School Teaching and Instruction in Applied Science, Art, and Handicrafts. The influence of Modern Sanitary Knowledge and Intellectual Progress upon the welfare of the people of all classes and all nations will thus be practically demonstrated, and an attempt will be made to display the most valuable and recent advances which have been attained in these important subjects.

The Exhibition will be divided into two main sections, Division I. Health, Division II. Education, and will be further sub-divided into eight principal groups.

In the First Group it is intended specially to illustrate the Food Resources of the world, and the best and most economical methods of utilising them. For the sake of comparison, not only will specimens of food from all countries be exhibited, but the various methods of preparing, cooking, and serving food will be practically shown. The numerous processes of manufacture connected with the preparation of articles of food and drink will thus be exemplified; and, so far as the perishable nature of the articles will admit, full illustrations will be given of the various descriptions of foods themselves.

In the Second Group, Dress, chiefly in its relation to health, will be displayed. Illustrations of the clothing of the principal peoples of the world may be expected, and a part of this Exhibition will be devoted to the History of Costume.

In the third, fourth, and fifth groups will be comprised all that pertains to the healthful construction and fitting of the dwelling, the school, and the workshop; not only as respects the needful arrangements for sanitation, but also the fittings and furniture generally in their effect on the health of the inmates. The most improved methods of school construction will be shown, and the modes of combating and preventing the evils of unhealthy trades, occupations, and processes of manufacture will form portions of the Exhibition.

Group 3*a* will be devoted to the ambulance, and will illustrate its applications both in war and in peace. Naval and military hygiene will be included in this group, which will also contain exhibits illustrating the fittings and furniture for sick-rooms. Permanent civil hospitals are not considered as coming within the scope of the Exhibition, nor do medical and surgical appliances generally.

Group 5*a* will treat of meteorology in its relation to health.

The Sixth Group will comprise all that relates to Primary, Technical, and Art Education, and will include Designs and Models for School Buildings; Apparatus and Appliances for Teaching; Diagrams, Text-books, &c. Special attention will be directed to Technical and Art Education, to the results of industrial teaching, to the introduction of manual and handicraft work into schools, and also to specimens illustrating the results of Art and technical teaching.

Further details of the scope of the various Groups will be found in the Memoranda drawn up by the several Sub-Committees, which have been selected from Members of the General Committee, for the purpose of advising the Executive Council on technical matters.

REGULATIONS.

1. An International Health Exhibition, under the patronage of her Majesty the Queen and the presidency of his Royal Highness the Prince of Wales, will be held in London in 1884.

2. The Exhibition will be opened on Thursday, 1st May, and will continue open for a period of not less than six months.

3. The principal objects to be exhibited are comprised in the accompanying classification, which is intended to illustrate chiefly food, dress, the dwelling, the school, and the workshop, as affecting the conditions of healthful life, and also the most recent appliances for elementary school teaching and instruction in applied science, art, and handicrafts.

4. Medals in Gold, Silver, and Bronze, and Diplomas of Honour will be awarded on the recommendation of International Juries.

5. No charge will be made for space, but Exhibitors will have to pay every expense of transit, delivery, fixing and removing their Exhibits, and erection of counters when required, and they must, either personally or by their agents, superintend the despatch, transmission, reception, unpacking, and installation, and at the close of the Exhibition the removal of their goods; in default thereof the Executive Council reserve to themselves the right of doing whatever may be considered necessary, and at the expense of the Exhibitor. Should any goods be deposited in the Exhibition premises during the absence of the Exhibitor or his Agent, the Executive Council will not be responsible for any loss or damage, from whatsoever cause arising.

6. Applications for allotment of space must be made on printed forms, which will be supplied on application to the Secretary, International Health Exhibition, South Kensington, S.W., which must be filled up and returned on or before Feb. 1, 1884. After this date no application will be received.

7. The nature of the articles which it is proposed to exhibit must be fully specified in the Form of Application for space.

8. The applications will be laid before the Executive Council, and the Secretary will, as soon as practicable, notify to applicants their decision with regard to the amount of space, if any, allotted to them.

9. The Executive Council reserve to themselves the absolute right of refusing to admit any exhibit.

10. The Foreign and Colonial Commissioners appointed by their Government are invited to communicate with the Secretary. They will be charged with the consideration of all questions relative to the distribution of the space allotted to their respective countries, and the Executive Council will place at their disposal all information and plans that may be useful to them.

11. The applicants for space from countries in which no Commissioner has been appointed will correspond directly with the Secretary.

12. The Executive Council will endeavour to obtain from the various English Railway Companies special terms for the conveyance of exhibits to and from the Exhibition, and should they succeed in doing so, such arrangements will be communicated to intending exhibitors.

13. All packages containing goods intended for exhibition must have painted on them the distinctive mark I. H. E., together with the *name and address* of the exhibitor. Labels will also be forwarded to each exhibitor.

14. Packages from foreign countries must likewise have painted on them the letters I. H. E. They must all be marked in such a way as to show distinctly from whence they come, the name of the country, and of the exhibitor.

15. All cases, counters, platforms, &c., must not exceed the following dimensions, without special permission:—

Show cases and partitions	10 feet	above the floor.		
Counters	3	,,	,,	,,
Platforms	1 foot	,,	,,	

16. Exhibitors may place railings around their stands, subject to approval; but in every instance the railings must be within the area of the "stand"—*i.e.*, the space allotted.

17. The flooring must not be altered, removed, or strengthened for the convenience of arrangement, except by sanction of the Executive Council, and at the expense of the Exhibitor.

18. No Exhibitor will be permitted to display exhibits in such a manner as to obstruct the light or impede the view along the open spaces, or to occasion inconvenience, injury, or otherwise disadvantageously affect the display of other Exhibitors.

19. In order to ensure uniformity of decoration and general good effect, no Exhibitor will be allowed to put up any flags, banners, or other kind of decoration without special permission.

20. Signs or name-boards must be placed parallel with the main passage, that is, parallel with the frontage of the respective stands. These must be black with gold letters, and must be hung subject to the approval of the Council.

21. All handbills, printed matter, &c., connected with exhibits for gratuitous distribution, must first receive the approval and permission of the Executive Council, which permission may be withdrawn at any time.

22. Cases must be unpacked as fast as possible, and the empty cases taken away by the exhibitors or their agents. The Executive Council decline to accept any responsibility with reference to empty cases, which must be at once removed from the building at the expense of exhibitors.

Sanitary Appliances, Etc.

VINA-COCA.

This tonic has acquired a deservedly high reputation in all cases wherein a mild but efficient stimulant is required. "Vina-Coca" is not so much a medicine as a skilfully compounded "tonic wine," in which the virtues of the familiar coca plant are united to Madeira. In all cases of debility, general weakness, and loss of appetite, "Vina-Coca" may safely be tried. It possesses a pleasant taste, and is altogether an agreeable tonic, without possessing any disagreeable effects or violent action. In addition to its tonic properties, "Vina-Coca" certainly possesses a high degree of nutritive power, and also serves as a preventive of too rapid waste or excretion.

THE "ARMSTRONG SPIRAL BRACE."

The present age, in respect of its dress-improvements and innovations, bids fair to rank very distinctly in the lists of the centuries. The ladies are not allowed to be sole occupants of the field of dress reform, and the wave of improvement has swept across the pathway of the sterner sex, whose apparent ease and comfort form the envy and admiration of "rational dressers." The male mind, however, is not much given to airing its grievances in the way of dress. Now and then a complaint regarding a tight boot, or a grumble at an ill-fitting hat may be heard; but the misery of a brace which cuts into the shoulders and chest, which causes stooping habits, and which renders easy walking an impossibility, is well known to every male mind. Various contrivances have been suggested by way of overcoming the manifest objections to a brace which is constructed on faulty principles, and out of the brace question arose the controversy of "belt *versus* braces." Compression of the male waist is just as injurious as is the similar process applied to the female chest, and it must be confessed that the familiar fashion of slinging the "unmentionables" from the shoulders is the most natural of all methods of support. In order that this support may be made a matter of ease, however, it is necessary that a really good brace should be worn. The coarse leather braces, or the equally objectionable elastic braces commonly sold in shops, are to be rejected, simply because there is little or no pliancy in them, and because they certainly favour habits of stooping. The latest improvement which has been submitted to us in the form of a brace is styled the "Armstrong Spiral Brace." By an exceedingly ingenious spiral arrangement the pressure or strain on any part of the brace or body is at once equalised. Freedom of movement is also duly secured with this brace as an article of attire, and all who are engaged in active manual labour, as well as those who indulge in any form of exercise, will find this brace a comfort and a luxury as compared with the old-fashioned style. The brace is strongly made; its parts are simply designed, and its fixation is easy. In this brace, we therefore welcome another to our store of rational dress articles. There is one hint which should be added regarding the wear of braces, namely, that the trousers should be cut of a proper length, so as not to demand an excessive appeal to the drawing powers of the braces by way of preserving them from wear below. Given a trouser of proper length and an "Armstrong Brace," and we should be able to defy stooping-habits, and to solve the vexed question of clothes suspension in the sterner sex.

Our Letter : Box

"Conference [maketh] a ready man."—*Bacon.*

NOTICES TO CORRESPONDENTS.

All Communications for the Editorial Department (including specimens of Sanitary Appliances, &c.), to be addressed to "The Editor of Health," *74-76, Great Queen-street, London, W.C. Those intended for the Publishing Office to be sent to* "The Publisher," *at the same address.*

LETTERS TO THE EDITOR.

CHILDREN'S DRESS.

Sir,—Although I had no wish to do so, I was led by Mr. Maxwell to give my opinion of corsets, which, if not tightly laced, I approve *under present conditions of dress and society.* This opinion seems to have raised a storm in the minds of the leaders of the two rival camps of dress reform; but the words I have now italicised show how innocent I was of having anything to do with them. They are at present the inconsiderable minority. When, however, they produce a form of dress which will enable me to *reform* my own with decency and increase of comfort, I shall be most happy to adopt it and relinquish my stays. Probably the majority of ladies who now share my view on this head will do the same. I am pleased to see Lady Harberton's mention of the "Kindergarten Frock" shortly to be introduced by Miss Franks. If it had been in existence when I wrote my article on "How to Clothe Children," I should certainly have recommended it; but as it was not, I can hardly be blamed for omitting to do so.

Although I shall always be happy to answer any civil questions put to me in good faith by your correspondents, I have neither taste nor time for controversy, and will not be led into it. If Mr. Maxwell and Mrs. King really think children ought to run about barefooted, by all means let them continue to think so, but I cannot see why they should take it upon themselves to be angry with me because, living as I do in England and not in New Zealand, I cannot share their opinion.

It is a strange thing that people have not yet come to realise the truth of the dictum—"Circumstances alter cases."—I am, Sir, yours truly,

Ada S. Ballin.

14, Tavistock-square, W.C., Feb. 8.

IMPORTANCE OF PROPER SUPERVISION AND PROPER TESTING IN CONNECTION WITH THE VENTILATION OF DRAINS, &c.

Sir,—We think it desirable, in the interest of architects and sanitary engineers, as well as in fairness to ourselves, to ask leave to call your readers' special attention to the necessity, not only of carefully testing any works at which *our* system may have been applied, but also of insisting on a *proper* result being established, as in *several* cases where our appliances had been used we have found that a proper current of air through the drains has not been obtained.

In one instance quite lately, in the neighbourhood of Holland Park, where the works had been carried out under our "direction," finding after completion that *no* current of air was observable at the inlet, which had been specially designed for the purpose of ventilating the drain and soil-pipe, and knowing that this ought not to be the case, we felt certain that there *must* be some improper obstruction, and upon examination that proved to be the case.

Water passed freely enough down the soil-pipe, but on the ground being opened, near the sentinel trap in the drain against the sewer, a complete stoppage was found in the fresh air inlet-pipe, formed by a stone wrapped in a piece of painted canvas.

This must have occurred either from extreme carelessness or was wilfully placed there to bring discredit upon our system of drain ventilation.

We may mention that prior to the obstruction being discovered, it was suggested by the workman that the Banner Cowl should be removed as failing to do its intended work.

We may add that the position for the obstruction, if purposely placed, was particularly well chosen, as the said inlet-pipe was intended to admit only fresh air into the drain.

We repeat, therefore, that all architects, sanitary engineers, and others, after the works are said to be complete, should insist, as we do ourselves, that it should be proved there is a current of air passing through the drains, &c., as this result cannot fail to be obtained wherever our system of sanitation is properly carried out.—Yours faithfully,

Banner Brothers.

11, Billiter-square, London, Feb. 5, 1884.

A HOUSEHOLDER'S GRIEVANCE.

Sir,—I perused the letter of your correspondent in reference to his house drains with great interest. We lawyers are, not altogether to our profit, well acquainted with the wiles of the speculative builder, which sometimes appear to compete hotly with our own innocent amusements (as attributed to us by the laity). But I do not remember having met with a worse case than your correspondent's. This may be small consolation to your householder. He has, however, the greater consolation of being in a position to recover damages for the false representation. Had he insisted on his rights early enough (I infer from his letter that he has been in possession for some time), he might, perhaps, have insisted on rescinding the purchase. The case is, however, a clear one for damages, and I recommend your correspondent to make a claim against the builder at once.—Yours faithfully,

Hood Barrs, LL.B.

QUERIES AND ANSWERS.

We would direct the attention of our correspondents to the fact that, owing to the necessity for sending Health to press early in the week, answers to queries cannot, as a rule, appear in the succeeding number of the journal. Every effort is made to secure punctuality in the replies, but we must ask the occasional indulgence of our readers, owing to the large amount of correspondence, which requires assortment and reply.

GENERAL.

Swansea Vale.—Diastase is a soluble nitrogenous principle contained in malt; when acting upon starch it forms dextrine and dextrose. Dextrose is grape or starch sugar, not present in the wine to which you refer. Very sorry that your letters, the receipt of which we acknowledged at the time in Health, were destroyed long ago.

E. Barry.—Thanks for your note. We take a deep interest in physical education of all kinds, and are pleased to hear of your success. We are sorry that at present, owing to numerous engagements, we cannot avail ourselves of your kind invitation.

May.—We have never heard of the practice to which you refer. But we believe there is an allied practice extant in some Continental towns.

J. Simmons.—We think with you that the law should be made general in its applications. At present as the law stands, it appears to allow quacks to prey upon the innocent equally with those who are less exposed to their attacks.

George Gill.—It would seem that there has been some misunderstanding on the part of the person you name. We do not see how the mistake can be amended now.

An Inquirer.—We agree with you that the special conformation of the face cannot be altered by any physical means, but much may be done by the exercise of judicious treatment to strengthen and fill out a too thin or ungainly form. The article to which you allude dealt with general principles only, and not with special cases such as that to which you refer. 2. The book to which you refer professed to give a number of instructions in the production of what we suppose may be called beauty on physiological grounds.

Hygiene.—Try Corfield's "Laws of Health," published by Longmans, price 1s. 6d.; also, "A Handbook of Sanitary Science," by Dr. Wilson, published by Messrs. Churchill.

Dark Gipsy.—Write to Messrs. Churchill, 11, New Burlington-street, London, W., and to Messrs. Baillière, Tindall, & Cox, Southampton-street, Strand, for catalogues of their works. We should think Roberts's "Practice of Medicine," Erichsen's "Surgery," or, the "Cyclopædia of Medicine," along with Quain's "Dictionary of Medicine," published by Messrs. Longmans, would be highly suitable. Glad to afford any further information required.

G. Nicholson.—Thanks for your suggestion, which shall have our attention.

Alliance.—We know nothing whatever of the two preparations to which you allude. We can only say that personally, and judging from the preparation, they resemble other quack remedies, and, in this light, we could not recommend you to waste your money on them.

SANITARY.

Austin.—The calculation to which you refer of the number of spores or germs contained in a single drop of fluid, the number being set down at 250,000, was that of Mr. Dancer, of Manchester. He calculated that 37½ millions of these spores, exclusive of other substances, were contained in eighty-eight cubic feet of Manchester air, a quantity which a man of ordinary size would take into his lungs in ten hours when actively employed.

Crewe.—The ammonia in water arises from the decomposition of organic or living matter.

A. Addington.—It is said that in the City of London as many as thirty-five tons of meat, dressed for sale, may be seized in one day as unfit for food.

Interested.—Ergot is a fungus attacking rye and wheat. Smut is another fungus found on barley and oats.

E. E.—Good flour should contain eight per cent. of gluten.

Analyst.—We believe the test to which you allude is that of Donne, which consists in pouring nitric acid and ammonia on flour. If adulterated with beans, a deep red colour appears.

MEDICAL.

An Assistant.—The symptom you mention does not in your case occur too often, and when you recover from your nervous state you will be quite well. Where you cannot have a cold bath in the morning you may obtain the same effect by dipping a towel in water and freely sponging your body therewith, using a dry towel and brisk friction thereafter. You might continue to take the tonic twice a day at intervals for a little time.

T. Turner.—1. No: if you pay great attention to your ordinary mode of life. 2. Yes, if no symptoms of the kind you note appear. 3. Mind control in your case is quite as important as health of body; the two are mutually dependent.

Darex.—Yours is a case in which we should strongly recommend you to take rest for a period, and likewise to seek a change. A visit to some mild seaside place would benefit you. We are persuaded you are simply out of sorts through overwork, and possibly nervousness induced thereby.

Amicus.—Try the effect of thorough washing with Pears' Soap and tepid water night and morning, and use for a time a little plain Vaseline thereafter. Write again if not improved.

Mexico.—You do not give a very clear account of your symptoms. Try what the remedy recommended to "Pedagogue" in Health No. 44 will do for you. If not better write more fully.

Detector.—The author of the pamphlet is a qualified medical man, but it is needless to say his practice both of advertising and of circulating such a pamphlet as that you enclose does not meet with the approbation of his profession. We know nothing of his treatment, but our opinion is that any practitioner knows quite as much about reliable methods of cure as the person you name.

R. Deronda.—We fancy that you are over nervous about yourself. We should strongly recommend you to try for a time to live on extremely light food, such as milk, light puddings, eggs, and nourishing soups. In this way, by giving your digestive organs a rest somewhat, you will be able to conquer the symptoms you describe. It is very probable also that a prolonged rest and a change of air would be highly beneficial to you. Glad to be of any further service.

Physiological.—No doubt we occasionally breathe a vast quantity of air in which the proportions of carbonic acid and organic matter exceed the health proportion. And in the lecture from which you quote reference is made to this. You should also bear in mind that there is an unfortunate tendency on the part of the human system to become accustomed to impure atmosphere, and to engender disease thereby. The exhalations from the skin add to the watery vapour, but do not materially increase the carbonic acid. You should have no doubt the impure atmosphere you breathe affects the whole life of the individual,—including the brain action, through that organ not being supplied with aërated blood. The common stair, to which Dr. Wilson alluded in his lecture, is the Scotch staircase common to houses built in flats. As usually seen, both in England and in Scotland, such a staircase is simply a shaft which, when ill-ventilated, is full of noxious gases.

Hopeful One.—We are glad that our condemnation of quacks has saved you from committing yourself to the hands of these impostors. You should not be nervous about yourself. What you complain of will be readily cured by simple attention to diet, &c., as recommended to "A. Keay" in present number. Take plenty of open-air exercise, and on no account believe in quacks.

A. J.—We fancy that in your case what you require is a thorough change of air to a bracing locality for a period. This would very likely benefit you immensely. It is clear you are also mentally depressed, and the change would benefit your mind as well as body. We should recommend you also to try the effect of a complete change of diet, beginning cautiously by experimenting on the effect of a vegetable dietary, which may relieve constipation. Your food might for a time consist also of milk, light soups, and puddings. Glad to be of further service.

An Anxious Inquirer.—You must give up aperient medicines and follow advice given to "A. J." above with regard to vegetable dietary. Your food should also be light, as above indicated, and, in all probability, a change of air will do you good. Some "Pepsine" might also be taken along with food. Let us hear how you are after a trial of our advice.

Porter.—See advice given to "Hopeful One" above, and beware of all advertising quacks. Do not be morbid; above all else there is no reason to fear.

Xenophon.—We certainly think the practice of the Zander Institute would greatly benefit you. We have seen such cases as yours remarkably benefited by such exercises as are there practised. Call and inspect the Institute. The surgeon there will give you every information.

W. R. Diamond.—We sympathise very much with the statement you enclose. It is just possible that many of the symptoms may be due to the condition therein mentioned. Under these circumstances our best advice to you is that should place the patient entirely under the supervision of a reliable physician; there are many points in the case which evidently require a doctor's watchful care.

J. Robinson.—You evidently obstructed in your sleep the circulation in your arm. Rub the wrist and arm night and morning with hot oil.

F. T. Andrews.—Try the effect of a little cod-liver oil emulsion taken through the winter. Clothe warmly and let your food be nourishing. You probably suffer simply from weak circulation.

W. B. A.—Kindly note that all letters must be addressed to the Editor of Health, and not to the publishers. Rest after meals; avoid all quack medicines, and take a little Pepsine with your food. By careful living you will outgrow your troubles.

Grace.—It is probable what you complain of will disappear in time. Meanwhile you might try the effect of rubbing the weak muscles with warm oil.

Birch.—See advice to "A. Keay," in present number.

J. P.—Touch the wart with a little aromatic vinegar, being careful to keep the vinegar from getting into the eyes, or from touching the skin around.

Rellimac.—In all probability, what you mention is simply a symptom of a slight weakness. It will disappear through taking rest, plain food, and for a time, 10 drops of *Fer Bravais* thrice daily in a little water. Write again if not better. There is nothing infectious in your case.

Questioner.—You should see a surgeon, as what you complain of will be easily remedied. We can send you the name and address of a reliable surgeon on receipt of a stamped addressed envelope.

Daisy.—You should know that asthma is a disease which is induced by any irregularity of living. If your digestion is out of order, this is a more than sufficient cause for the attacks. Our best advice to you is to see carefully to every detail of your general health. A change of air is likely to be beneficial. If not improved write again.

Hadrian.—The eruption is a common sequence of the trouble you name. We should advise you firstly to attend carefully to the general health, and to take fifteen drops *Fer Bravais* in a little water thrice daily. When threatened with your trouble you must clothe warmly, and let your food be light, nutritious, and not stimulating. Glad to be of further service.

Compos Mentis.—In your case we should advise you to try the effect of cod-liver oil, a dessertspoonful taken thrice daily after meals. Clothe warmly, and let your food be light and nourishing. You do not seem to be in ill-health, but only require care in regulating your food and the other details of your living.

Lenore Gulphino.—In all probability a surgeon would at once by an examination of your throat detect the cause of all your troubles. We incline to the belief that your uvula may be a little elongated, and may require a slight operation. Such symptoms as yours often arise from very slight causes.

Adieu.—Our advice to you is to rest after food, eat plenty of fruits, and take a little "Pepsine" with your food. Do not despair. Why not try a temporary change to the seaside for a month or so? This would likely set you on your feet again.

Hygeia.—To your present mode of dietary we see no objection. Dilute your claret with water. Kindly describe again, in exact terms, the nature of the skin complaint from which you suffer. We do not preserve letters.

J. P. L.—We fancy your confined occupation tells against your health. Try to obtain more fresh exercise. Take the claret, but without the lemonade or sugar. The tonic recommended to a "Morbid Mind" in present number might do you good.

W. Muir.—Yours is a case in which nervousness alone is making you ill. You have nothing whatever to fear. Cases like yours are perfectly common, and you will get quite well by simply attending to your general health by taking a cold sponge-bath, if it can be borne, every night and morning, and by getting rid of all your morbid fears. The medical opinion you had was perfectly sound. You are quite well. Have no fears for the future.

Mother.—We should recommend rest and hot salt-water bathing occasionally. The symptom you mention may possibly be due to a little gout. If it increases in severity, you must see a doctor.

Beatrice.—You must not work so hard, as what you complain of certainly arises as much from nervous exhaustion as from any other cause. From 15 to 20 grains is an average dose of bromide of potass; but you must not make a habit of taking this medicine.

A City Artisan.—Try the tonic recommended to "Morbid Mind" in present number, and see that you are not over-worked. Food to be light and nourishing.

Ulster.—We do not know anything of the medical man you name; as far as the system of treatment he practises is concerned, it is correct enough. You might try the effect of inhaling the steam from a pint of hot water, into which a teaspoonful of Friar's Balsam has been placed. This may be used for ten minutes twice or thrice daily, but great care must be taken against cold after the inhalation.

Abacist.—Try washing the hands with a saturated solution of boracic acid. 2. No. Camphorated chalk is the best dentifrice we know of. 3. Depends entirely on the source of the ailment. If this is stated, we shall be glad to advise you.

Sperens.—You must look to your food. Avoid all unwashed vegetables. Try an infusion of quassia injected daily for the children. For yourself an injection of perchloride of iron, half an ounce to a pint of water, may be tried.

J. Harvey.—Wear a suspensory bandage, and take ten drops of *Fer Bravais* twice daily in a little water.

Peety-Weety.—No; iodine is not adapted for the purpose you mention. Inquire at your druggist's, who may be able to let you have a cheaper preparation. Ascertain, however, that it is a reliable one.

Desideratum.—1. We should advise you to wear woollen socks' as coloured cotton ones are not adapted for you. 2. Certainly; take off all your body-clothes and put on special and clean night apparel on going to rest. 3. We know nothing of the Association you name, save that in all its ways and practices it closely imitates the ways and works of quackery. The person you name is not on the list of qualified medical men. Better far trust yourself in the hands of a qualified practitioner. The recipe you give will closely imitate the "salt" you name.

North Devon.—No objection to your proposed trip. The Engadine would suit you, we fancy. The symptoms you complain of appear to be largely those of dyspepsia. Try a change of food, eat fruits and vegetables, and take Morson's "Pepsine" with food as directed. Rest after food especially, and avoid stimulants. A change to the south coast—Bournemouth, Hastings, or Brighton—might even now suit you. Glad to be of any further service.

F. W. D.—You cannot proceed against the firm you name without some cause, and you do not name any such cause in your letter. If you wish to prove them to be quacks to your own satisfaction, write to them asking the names and addresses of the physicians and surgeons they keep on the premises. We can then inform you if their names are on the "Medical Register." The pamphlets savour of the usual quackery.

Compos Mentis.—You are extremely foolish to place any dependence whatever on the opinion of any "medical phrenologist and botanist." For your pimples, try the remedy prescribed to "Alga" in Health No. 45. [See also reply in opposite column.]

Morbid Mind.—Follow advice to "North Devon" above. Let your food be light and nourishing for a time; and you might also try as a tonic a teaspoonful of Fellows' "Syrup of the Hypophosphites," thrice daily in a wineglassful of water. Don't be morbid, and let us hear how you are shortly.

OH_2.—Simply careful living—nourishing food, plenty of fresh air, no stimulants, and a little of the tonic recommended to "Morbid Mind" above, occasionally. Food to be light as a rule. There is no special diet, except, perhaps, white fish, of which eat plentifully at times.

Edinburgh.—Live plainly, avoid all stimulants, use weak injections of Condy's Fluid and water (1 part Condy to 20 water), night and morning, and for a tonic take ten drops *Fer Bravais* thrice daily in water. Rest as much as possible till thoroughly well.

A. C.—*Lemon* juice will do you no harm. Guard against cold, and try hot salt water baths occasionally.

Suffering Will.—Avoid all stimulants; live plainly; clothe warmly; and try the following:—Bitartrate of potass, 3 drachms; infusion of buchu, 6 ounces. A tablespoonful thrice daily. Let us hear how you are in a few days.

W. R.—Procure some of the water, and send it to a chemist to be analysed, in which case a poison, if present, might be detected. The details you give are so general, we cannot pronounce any opinion on the case.

A. Keay.—Sleep on a hard mattress; try cold sponging night and morning; avoid fluids late at night; live plainly; avoid stimulants, and take plenty of open-air exercise. No need for any electrical apparatus. The tonic recommended to "Morbid Mind" above should also do you good.

Sociable.—What you complain of may arise from a large number of different causes. Send particulars of health, &c.

A Subscriber.—1. Yes; may be cured, but only under efficient and, for a time, constant medical supervision. 2. Depends on nature of ailment entirely.

Hopeful Brother.—Attend to the general health, and follow directions given to "A Keay," in present number. If there is any weakness, and a tonic is required, try that recommended to "Morbid Mind."

W. H.—In such a case as that you mention, and considering the advanced age of the patient, we think your best plan will be to consult a reliable physician. It is probable that the symptoms may be those requiring medical advice.

C. W. G.—We imagine you are overworked, and your occupation probably induces some slight strain. We should advise you, if possible, to procure some lighter employment; and as regards diges-

[*Continued on page* 336.

INTERNATIONAL HEALTH EXHIBITION,

LONDON, 1884.

Patron—Her Majesty the Queen.

President—His Royal Highness the Prince of Wales, K.G.

HEALTH—FOOD, DRESS, the DWELLING, the SCHOOL, and the WORKSHOP.
EDUCATION—APPARATUS used in PRIMARY, TECHNICAL, and ART SCHOOLS.

TO BE OPENED EARLY IN MAY.

All information can be obtained on application to the Secretary, South Kensington, London, S.W.

SKIN DISEASES
DUE TO
NERVOUS DERANGEMENTS.
THEIR CURATIVE TREATMENT.
By Dr. DOWSE.
PRICE TWO SHILLINGS.

PUBLISHED BY BAILLIÈRE, TINDALL, & COX,
King William Street. Strand.

THE ART OF BREATHING NATURALLY,
A TAUGHT BY
TWO GOLDEN RULES OF HEALTH.
London: The City of London Publishing Co., Limited, 5, Friar-street, Broadway, E.C. Price 3d.

CHATTO & WINDUS, PUBLISHERS.

Price Fourpence Monthly; by post, 5d.

SCIENCE GOSSIP:

A MONTHLY MEDIUM OF INTERCHANGE AND GOSSIP FOR STUDENTS AND LOVERS OF NATURE.

Edited by J. E. TAYLOR, F.L.S., &c.

THE CHEMICAL HISTORY OF A CANDLE. By Michael Faraday. Edited by W. Crookes, F.C.S. With numerous Illustrations. Crown 8vo., cloth extra, 4s. 6d.

ON THE VARIOUS FORCES OF NATURE. By Michael Faraday. Edited by W. Crookes, F.C.S. With numerous Illustrations. Crown 8vo., cloth extra, 4s. 6d.

MORE WORLDS THAN ONE, THE CREED OF THE PHILOSOPHER AND THE HOPE OF THE CHRISTIAN. By Sir David Brewster. Crown 8vo., with Plates, 4s. 6d.

THE MARTYRS OF SCIENCE. By Sir David Brewster. Crown 8vo., cloth extra, with full-page Portraits, 4s. 6d.

THE EARTH and MAN; or Physical Geography in its Relation to the History of Mankind. By Arnold Guyot. With 12 Maps, &c. Crown 8vo., cloth extra, 4s. 6d.

POPULAR ASTRONOMY. By J. Rambosson. Translated by C. B. Pitman. Crown 8vo., with Illustrations, 7s. 6d.

LEISURE-TIME STUDIES, chiefly BIOLOGICAL. By Andrew Wilson, F.R.S.E. Crown 8vo., cloth extra, with Illustrations, 6s.

CHAPTERS ON EVOLUTION. A Popular History of the Darwin and Allied Theories of Development. By Andrew Wilson, F.R.S.E. Crown 8vo., cloth extra, with 300 Illustrations, 7s. 6d.

LEAVES FROM A NATURALIST'S NOTE-BOOK. By Andrew Wilson, F.R.S.E. Post 8vo., cloth limp, 2s. 6d.

SCIENCE IN SHORT CHAPTERS. By W. Mattieu Williams. F.R.A.S., F.C.S. Crown 8vo., cloth extra, 7s. 6d.

A SIMPLE TREATISE ON HEAT. By W. Mattieu Williams, F.R.A.S., F.C.S. Crown 8vo., cloth limp, with Illustrations, 2s. 6d.

THE EVOLUTIONIST AT LARGE. By Grant Allen. Crown 8vo., cloth extra, 6s.

VIGNETTES FROM NATURE. By Grant Allen. Crown 8vo., cloth extra, 6s.

COLIN CLOUT'S CALENDAR. By Grant Allen. Crown 8vo., cloth extra, 6s.

SCIENCE NOTES, by W. MATTIEU WILLIAMS, F.R.A.S., appear monthly in *THE GENTLEMAN'S MAGAZINE*, Price One Shilling.

CHATTO & WINDUS, PICCADILLY, W.

HEALTH:

A WEEKLY JOURNAL OF DOMESTIC AND SANITARY SCIENCE.

Edited by Dr. ANDREW WILSON, F.R.S.E.

"HEALTH" has been established to supply a felt and growing demand for a weekly periodical which shall deal with all matters relating to the Preservation of Health and the Prevention of Disease.

Articles appear weekly under the following headings by well-known writers:—

Original Articles and Essays,	The Family Circle,
Papers on Personal Health,	Recreation and Health,
Health in the Home,	Jottings from the Journals,
The Body and its Structure,	Our Bookshelf.

An important department of "HEALTH" consists in Our Letter-Box. Space is devoted under this head to the publication of Correspondence on Health Matters. Here, also, Queries relating to General, Sanitary, and Medical Matters will find their replies.

The following Monthly Parts are still to be had:—

Part I. (April and May)	Numbers 1 to 7 ...	Price	1s. 4d.
„ II. (June)	„ 8 to 12 ...	„	1s. 0d.
„ III. (July)	„ 13 to 16 ...	„	10d.
„ IV. (August)	„ 17 to 21 ...	„	1s. 0d.
„ V. (September) ...	„ 22 to 25 ...	„	10d.
„ VI. (October)	„ 26 to 29 ...	„	10d.
„ VII. (November).....	„ 30 to 34 ...	„	1s. 0d.
„VIII. (December).....	„ 35 to 38 ...	„	10d.
„ IX. (January, 1884)	„ 39 to 42 ...	„	10d.

Volume I. now ready price 7s. 6d.

It comprises all the Numbers published from the commencement to September, 1883.

The Index to Vol. I. is also ready, price 2d., post-free 2½d.; Cases for Binding, price 2s. each, including parcel postage, 2s. 3d.

"*Health* has reached a full growth of usefulness and we cordially recommend it to all who wish for the greatest blessing a man can have."—*Jewish Chronicle.*

"A valuable acquisition to our periodical literature."—*Observer.*

"Ably edited. . . It is well supplied with instructive papers."—*Weekly Dispatch.*

"Devoted to the popular exposition of sanitary matters, and to the education of the people in the laws of health."—*Medical Press and Circular.*

"Has articles of the greatest variety on readable educational subjects, and written in really a popular style."—*Citizen.*

London: WYMAN & SONS, 74-76, Great Queen-st.
And all Booksellers and Newsagents.

WORKS ON HEALTH SUBJECTS.

FOOD; its Varieties, Chemical Composition, Nutritive Value, Preparation, Preservation, Adulterations, &c. By the late Dr. Letheby. Second edition, enlarged, price 5s.

"Dr. Letheby's position and authority on the subject of food is so pre-eminent, that a book from his pen is above criticism."—*Lancet.*

"Either as a text-book for schools or as a household guide, it is excellently adapted."—*Public Opinion.*

HEALTHY HOMES. By Stanley Haynes, M.D., M.R.C.S. F.R.G.S. Price 1s.

NOTES ON NUISANCES, DRAINS, AND DWELLINGS. By W. H. Penning, F.G.S. Second edition, price 6d.

SHORT LECTURES ON SANITARY SUBJECTS. By Richard J. Halton, L.K.Q.C.P., L.R.C.P.Ed. Price 5s.

"A book well adapted to popular reading, and replete with sound knowledge promotive of good health and long life."—*Sanitarian.*

HOW TO FEED AN INFANT. With an Appendix on the Common Ailments of Infancy, with their Hygienic and Curative Treatment. By Benson Baker, M.D. Price 1s. 6d.

"Popularly written, and sensible in the highest degree, its widespread perusal would help to bring about a more rational system of bringing up infants."—*Graphic.*

HOW TO BRING UP CHILDREN BY HAND. By J. Foster Palmer, L.R.C.P. Price 6d.

PRACTICAL GUIDE FOR THE YOUNG MOTHER. From the French of Dr. Brochard, Director-General of Nurseries and Crèches, with Notes and Hints by a London Physician. Price 2s.

A PHYSICIAN'S SERMON TO YOUNG MEN. By William Pratt, M.A., M.D., &c. Fourth Thousand, price 1s. cloth.

"The delicate topic is handled wisely, judiciously, and religiously, as well as very plainly."—*The Guardian.*

OVERWORK AND PREMATURE MENTAL DECAY: its Treatment. By C. H. F. Routh, M.D., M.R.C.P.Lond. Third edition. Price 2s. 6d.

HOW TO PROLONG LIFE: An Inquiry into the Cause of "Old Age" and "Natural Death." Showing the diet and agents best adapted for a *lengthened* prolongation of existence. By C. W. De Lacy Evans, M.R.C.S.Eng., &c. Price 5s.

"A good account of the somatic changes which occur with the advance of age."—*Lancet.*

"This is a very ingenious and interesting book. . . Some near or remote age will assuredly, as Longfellow has guessed, succeed in

'Showing conclusively and clearly
That Death is a stupid blunder merely
And not a necessity of our lives.'"—*Chemist and Druggist.*

BAILLIÈRE, TINDALL, & COX, 20, King William-street, Strand

tion, take a little "Pepsine" with your meals. You will sleep better when your digestion is restored.

G. N. A. L.—It is just possible that the green paint may have contained arsenic; and the symptoms you mention resemble those of arsenical poison. At the same time, they may be due to other causes. Your only surety is to have some of the paint analysed by a chemist in your city.

T. W. C.—You do not give us sufficient particulars to enable us to judge; but when the pain is severe, apply hot fomentations and take internally 15 grains of bromide of potass dissolved in a wine-glassful of water.

E. F. H.—No great amount of exercise should be taken on an empty stomach. A pipe is preferable to cigarettes. Moderately indulged in, as you remark, a pipe or cigar will do you no harm.

Knee-Cap.—We should recommend you to see a surgeon at a hospital or elsewhere. You will probably be advised to wear an elastic knee-cap, such as can be obtained at any surgical instrument makers.

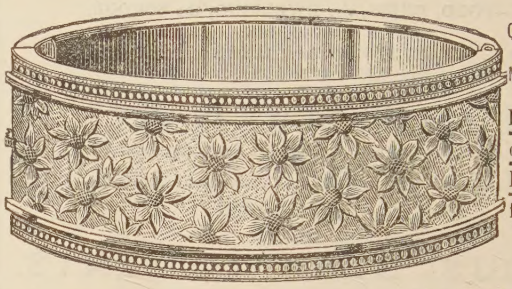
J. B. B.—We think yours is a case in which a thorough medical examination by a competent physician is the only means of relieving your mind. Your symptoms may be due to a variety of causes. If not able to afford a fee, apply at an hospital: your case is one for personal examination.

Marital.—Cases like yours are by no means uncommon, and may depend on some slight obstruction. We should recommend you to use a little pure "Vaseline" as an application. There is no disease in the question, but for your own sake you might make a thorough examination and let us know if you discover any condition to account for your difficulty.

VALENTINES! VALENTINES!!

The Public effect a clear saving of 25 to 50 per cent. by purchasing

FIELDING'S HALL-MARKED JEWELLERY.



THE FINEST QUALITY MADE, TESTED AND MARKED AT GOLDSMITHS' HALL. Every one should see our New Illustrated Price List sent post-free.

Any goods not approved can be returned within one week and the full amount will be refunded.

Massive Silver Bracelet, exact to above ..... £0. 14s. 6d.
Ditto ditto in 15-carat Gold £4. 15s. 0d.

Morocco Cases, 2s. extra.

The Editor of "*Health*" says: "Messrs. Fielding Bros.' Gold and Silver Ornaments are marvels of cheapness and elegance."—See No. 36, 14th December, 1883.

FIELDING BROS. Wholesale 42z, Lombard-st. London.

CHLORALUM LIQUID and the following compounds are now made with great care in a highly improved form by a practical Chemist. Superior to any other non-poisonous disinfectant.

CHLORALUM POWDER should be used in Stables, Drains, Refuse Heaps, &c.

CHLORALUM WOOL is a powerful Styptic, and rapidly disinfects and cures idle and festering wounds.

CHLORALUM TOOTH-POWDER is wonderfully effective in removing Tartar, and is a pleasant and powerful Tonic to the Gums. All should use it.

CHLORALINE is a most valuable liniment. Three applications a day copiously rubbed in will cure the worst Chilblain in three days. A powerful astringent lotion.

ABSORBENT WOOL absorbes liquid like a sponge. May be used with any dressing.

DOWIE & MARSHALL,

who were awarded the Silver Medals both at the National Health Society's Exhibition, 1883, and the Exhibition of the Rational Dress Association, make Ladies', Gentlemen's & Children's

BOOTS AND SHOES

in every kind, and keep many thousands ready for immediate use. *Price List Gratis.*

DOWIE & MARSHALL'S EASY BOOTS.

Only Address—455, WEST STRAND (Opposite Grand Hotel).

ESTABLISHED 60 YEARS.

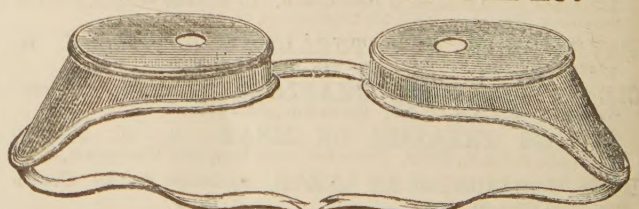
PRESERVE YOUR SIGHT BY USING

VALE'S PATENT SHADED SPECTACLE.

Price, post-free, in neat Leather Case, with best Crystal Glasses, 5s. 9d. each; with best Pebbles, 8s. 9d. each.

This new invention will be found invaluable by all who read much, as it effectually keeps the light from falling on the eyes or glasses, thus preventing any reflection, which, with the light, so often causes pain in the eyes and head after reading some time.

THE VISUALER.



Price, post-free, in neat Leather Case, with Elastic or Tape Band, 5s. 9d. each; with Steel Frame and Sides, 8s. 9d. each.

This unique article, after much trouble and study, has been brought to perfection, to remedy that peculiar and unfortunate defect of the eyes commonly termed squinting. It is the most efficient remedy, and will readily bring the eyes to their proper position. In ordering, please give width from centre to centre of eyes.

The above can be had of any Optician, or direct from the Makers—

HENRY VALE & SONS, Manufacturing Opticians, 219 and 220, Summer Lane, Birmingham.